Turning to Fig. 5, we see the vertical movement mechanism that is provided in the MRI apparatus according to the first embodiment of the present invention. As shown in Fig. 5, a vertical movement mechanism 34, which causes the tabletop 6 to move up and down, is provided on the tabletop 6.

IN THE CLAIMS

Please substitute the following amended claims 1-7 for corresponding claims previously presented. A copy of the amended claims showing current revisions is attached.

Please amend the format of claims 1-7 to better conform with standard US practice.

1. (Amended) A magnetic resonance imaging apparatus comprising:

a static magnetic field generator for generating a static field;

a gradient magnetic field generator for generating a gradient magnetic field that is superimposed on the static magnetic field;

a radio-frequency magnetic field pulse transmitting/receiving unit, which applies a radio-frequency pulse to a region of interest of a patient that is located within the static magnetic field, and which also receives a magnetic resonance signal that is generated from the patient;

a patient couch, which enables movement of the patient;

a position information establishing apparatus which provides 3-dimensional position information of the region of interest of the patient; and

a patient couch controller for moving the patient couch, based on the provided position information, so that the region of interest is re-positioned in 3-dimensions substantially either at the center of the static magnetic field, or at the center of the gradient magnetic field.

2. (Amended) A magnetic resonance imaging apparatus as in claim 1, wherein the position information establishing apparatus accepts input position information based on an image of the patient that is obtained from the magnetic resonance signal.

3. (Amended) A magnetic resonance imaging apparatus as in claim 1, wherein the position information establishing apparatus comprises a position detection apparatus that detects the position of the region of interest.

4. (Amended) A magnetic resonance imaging apparatus as in claim 3, wherein the patient couch controller performs an initial approximate positioning of the patient couch, based on a signal from the position detection apparatus.

5. (Amended) A magnetic resonance imaging apparatus as in claim 1, wherein the patient couch is capable of moving the patient in the horizontal and vertical directions.

6. (Amended) A method for performing magnetic resonance imaging diagnosis, said method comprising:

placing the patient onto a patient couch that is disposed within a static magnetic field and a gradient magnetic field;

moving the patient couch based on a signal from a position detector so that a region of interest of the patient approximately coincides with the center of the static magnetic field or the center of the gradient magnetic field;

applying a radio-frequency pulse to the region of interest of the patient, and receiving a magnetic resonance signal that is generated from the patient;

reconstructing a plurality of images of the patient, based on the magnetic resonance signal;

A2 selecting an image that includes the region of interest from the plurality of images of the patient; and

moving the patient couch, based on the selected image, so that the region of interest of the patient substantially coincides in 3-dimensions with the center of the static magnetic field or the center of the gradient magnetic field.

7. (Amended) A method for performing magnetic resonance imaging diagnosis as in claim 6, wherein the step of selecting an image further comprises a step of designating the region of interest within the selected image.

Add new claims 8-12:

A3 --8. (New) A method for performing magnetic resonance imaging diagnosis, said method comprising:

placing the patient onto a patient couch that is disposed within a static magnetic field and a gradient magnetic field;

designating a 3-dimensional position of a region of interest of the patient; and

moving the patient couch, so that the region of interest of the patient substantially coincides 3-dimensionally with the center of the static magnetic field or the center of the gradient magnetic field.

9. (New) A method as in claim 8, wherein the step of designating a 3-dimensional position of a region of interest further comprises the steps of:

moving the patient couch so that the region of interest of the patient approximately coincides with the center of the static magnetic field or the center of the gradient magnetic field;

applying a radio-frequency pulse to the region of interest of the patient, and receiving a magnetic resonance signal that is generated from the patient;

reconstructing a plurality of images of the patient, based on the magnetic resonance signal;

selecting an image that includes the region of interest from the plurality of images of the patient; and

designating the region of interest within the selected image.

10. (New) A method as in claim 9 wherein the initial step of moving the patient couch comprises obtaining positional information from a position sensor representing a 3-dimensional position for the region of interest.

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11. (New) A method for three-dimensionally positioning a patient region of interest substantially at an optimum MR imaging position within an MRI system, said method comprising:

positioning a patient region of interest at a first position within an MRI field of view;

generating MR images of the patient in three dimensions while located at said first position;

locating and designating the patient region of interest position within said images;

generating 3-dimensional position difference data between the designated position of the patient region of interest in the images and an optimum MR imaging position; and

re-positioning the patient region of interest in 3-dimensions from said first, now designated, position to an optimum MR imaging position using said position difference data.

12. (New) A method as in claim 11 wherein said positioning step utilizes position data provided by a position sensor that automatically senses a relative spatial position between a movable patient and a fixed MRI system.